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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,303	04/14/2000	Brian Haab	S99-066	9147

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EXAMINER	
FORMAN, BETTY J	
ART UNIT	PAPER NUMBER
1634	

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15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/550,303	HAAB ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-16,18-29 and 31-37* is/are pending in the application.

4a) Of the above claim(s) *1-7,9 and 19-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-16,18 and 31-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *11* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is in response to papers filed 17 June 2002 in Paper No. 13 in which claims 1, 10-16 and 18-19 were amended, claims 8, 17 and 30 were canceled and claims 31-37 were added. All of the amendments have been thoroughly reviewed and entered.

It is noted that the marked up copy of the claims does not correctly illustrate all the amendments e.g. Claim 10, line 1, does not correctly illustrate the insertion of "of claim 31". It is also noted that Applicant states on page 4 of the Response, "The amendments to claims 1, 10-16 and 18-19 relate solely to limitations in length of the amino acid sequences that are deposited...". This statement is incorrect. As mentioned above, Claim 10 has been amended to depend from new claim 31. Additionally, claim 10 as been amended to insert "planar" solid support. As such, the scope of Claim 10 has been amended by limitations other than the limitations in length of the amino acid sequences as stated by Applicant.

The previous rejections in the Office Action of Paper No. 10 dated 12 December 2001 are withdrawn in view of the amendments. All of the arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection are discussed.

Currently claims 10-16, 18 and 31-37 are under prosecution.

Election/Restrictions

2. Claims 1-9 and 19-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9. Applicant's arguments regarding the restriction were discussed and made FINAL in the First Office Action of Paper No. 10.

The requirement is still deemed proper and is therefore made FINAL.

Priority

3. This application filed under former 37 CFR 1.60 lacks the necessary reference to the prior applications because the first paragraph of the specification does not recite the claimed priority to Application 08/688,488, filed 07/30/1996 (as claimed in the filing receipt) and Provisional Application 60/129,449, filed 4/15/1999 (as claimed in the Declaration).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent **by another** filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 10-16, 18 and 31-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Brown et al (U.S. Patent No. 5,807,522, issued 15 September 1998) as defined by Zubay, G. (Biochemistry,3rd ed. Wm C. Brown Pub., Dubuque Iowa, 1993, pages 964-966).

Regarding Claim 10, Brown et al disclose a microarray of analytes as claimed in Claim 31 wherein the microarray is produced by the method of loading an aqueous solution of a selected polypeptide in a reagent-dispensing device having an elongate capillary channel adapted to hold a quantity of the reagent solution and having a tip region at which the solution in the channel forms a meniscus, tapping the tip of the dispensing device against a surface of a planar solid support at a defined position with a in impulse effective to break the meniscus in the capillary channel and deposit a selected volume between 0.002 and 2 nl of solution on the surface and repeating the loading and tapping until a microarray is formed (Column 7, line 55-Column 8, line 54) wherein the analyte-specific reagents are polypetides e.g. antibodies (Column 6, lines 20-28 and Column 15, lines 52-58) which are defined by Zubay as being polypeptides of at least 50 amino acids in length (page 965, fig. 33.2).

Regarding Claim 11, Brown et al disclose the microarray wherein the microarray comprises 100 or more discrete regions of discrete regions of distinct polypeptides per cm^2 of solid support (Column 6, lines 32-38 and Column 9, lines 30-45).

Regarding Claim 12, Brown et al disclose the microarray wherein the microarray comprises 1000 or more discrete regions of discrete regions of distinct polypeptides per cm^2 of solid support (Column 6, lines 32-38 and Column 9, lines 30-45).

Regarding Claim 13, Brown et al disclose the microarray wherein the polypeptides are immunological receptors (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 14, Brown et al disclose the microarray wherein the immunological receptors are antibodies (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 15, Brown et al disclose the microarray wherein the polypeptides are antigens (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 16, Brown et al disclose the microarray wherein the planar solid support comprises a cationic film which binds said polypeptide (Column 13, line 48-Column 14, line 10).

Regarding Claim 18, Brown et al disclose the microarray wherein the polypeptides retain the binding properties of the native polypeptide conferred by the three-dimensional structure i.e. the analyte-specific reagent is one member of ligand/anti-ligand pair wherein the analyte-specific reagent on the microarray binds to its binding partner for identification of the analyte. As such, the analyte-specific reagent maintains the binding properties of the native polypeptide to thereby identify the analyte for which it is specific (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 31, Brown et al disclose a microarray of discrete analytes wherein the analyte-specific reagents are polypetides e.g. antibodies (Column 6, lines 20-28 and Column 15, lines 52-58) which are defined by Zubay as being polypeptides of at least 50 amino acids in length (page 965, fig. 33.2) wherein the microarray comprises 100 or more discrete regions of discrete regions of distinct polypeptides per cm^2 of solid support (Column 6, lines 32-38 and Column 9, lines 30-45).

Regarding Claim 32, Brown et al disclose the microarray wherein the microarray comprises 1000 or more discrete regions of discrete regions of distinct polypeptides per cm^2 of solid support (Column 6, lines 32-38 and Column 9, lines 30-45).

Regarding Claim 33, Brown et al disclose the microarray wherein the polypeptides are immunological receptors (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 34, Brown et al disclose the microarray wherein the immunological receptors are antibodies (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 35, Brown et al disclose the microarray wherein the polypeptides are antigens (Column 6, lines 13-28 and Column 15, lines 52-58).

Regarding Claim 36, Brown et al disclose the microarray wherein the planar solid support comprises a cationic film which binds said polypeptide (Column 13, line 48-Column 14, line 10).

Regarding Claim 37, Brown et al disclose the microarray wherein the polypeptides retain the binding properties of the native polypeptide conferred by the three-dimensional structure i.e. the analyte-specific reagent is one member of ligand/anti-ligand pair wherein the analyte-specific reagent on the microarray binds to its binding partner for identification of the analyte. As such, the analyte-specific reagent maintains the binding properties of the native polypeptide to thereby identify the analyte for which it is specific (Column 6, lines 13-28 and Column 15, lines 52-58).

6. Claims 10, 11, 13-15, 18, 31, 33-35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al (U.S. Patent No. 4,591,570, issued 27 May 1986) as defined by Zubay, G. (Biochemistry,3rd ed. Wm C. Brown Pub., Dubuque Iowa, 1993, pages 964-966).

Regarding Claim 10, Chang discloses a microarray of polypeptides (i.e. antibodies) as claimed in Claim 31 wherein the microarray is produced by the method of loading an aqueous solution of a selected polypeptide in a reagent-dispensing device having an elongate capillary channel adapted to hold a quantity of the reagent solution and having a tip region at which the solution in the channel forms a meniscus, tapping the tip of the dispensing device against a surface of a planar solid support at a defined position with a in impulse effective to break the meniscus in the capillary channel and deposit a selected volume between 0.002 and 2 nl of solution on the surface and repeating the loading and tapping until a microarray is formed

(Column 3, lines 39-55) and antibodies are defined by Zubay as being polypeptides of at least 50 amino acids in length (page 965, fig. 33.2).

Regarding Claim 11, Chang discloses the microarray wherein the microarray comprises 100 or more discrete regions of discrete regions of distinct polypeptides per cm^2 of solid support (Column 7, lines 1-67 and Fig. 2).

Regarding Claim 13, Chang discloses the microarray wherein the polypeptides are immunological receptors i.e. antibodies (Column 7, lines 1-67).

Regarding Claim 14, Chang discloses the microarray wherein the immunological receptors are antibodies (Column 7, lines 1-67).

Regarding Claim 15, Chang discloses the microarray wherein the polypeptides are antigens (Column 4, lines 61-66).

Regarding Claim 18, Chang discloses the microarray wherein the polypeptides retain the binding properties of the native polypeptide conferred by the three-dimensional structure i.e. the analyte-specific reagent is one member of ligand/anti-ligand pair wherein the analyte-specific reagent on the microarray binds to its binding partner for identification of the analyte. As such, the analyte-specific reagent maintains the binding properties of the native polypeptide to thereby identify the analyte for which it is specific (Column 7, line 40-Column 8, line 29).

Regarding Claim 31, Chang discloses a microarray of discrete polypeptides e.g. antibodies (Column 6, lines 20-28 and Column 15, lines 52-58) which are defined by Zubay as being polypeptides of at least 50 amino acids in length (page 965, fig. 33.2) wherein the microarray comprises 100 or more discrete regions of discrete regions of distinct polypeptides per cm^2 of solid support (Column 3, lines 39-55).

Regarding Claim 33, Chang discloses the microarray wherein the polypeptides are immunological receptors i.e. antibodies (Column 7, lines 1-67).

Regarding Claim 34, Chang discloses the microarray wherein the immunological receptors are antibodies (Column 7, lines 1-67).

Regarding Claim 35, Chang discloses the microarray wherein the polypeptides are antigens (Column 4, lines 61-66).

Regarding Claim 37, Chang discloses the microarray wherein the polypeptides retain the binding properties of the native polypeptide conferred by the three-dimensional structure i.e. the analyte-specific reagent is one member of ligand/anti-ligand pair wherein the analyte-specific reagent on the microarray binds to its binding partner for identification of the analyte. As such, the analyte-specific reagent maintains the binding properties of the native polypeptide to thereby identify the analyte for which it is specific (Column 7, line 40-Column 8, line 29).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 10-15, 18, 31-35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beattie (U.S. Patent No. 5,843,767, filed 10 April 1996) as defined by Zubay, G. (Biochemistry,3rd ed. Wm C. Brown Pub., Dubuque Iowa, 1993, pages 964-966).

Regarding Claim 10, Beattie teaches a microarray comprising binding reagents deposited at defined positions on a planar solid support (Claims 1 and 15) and they teach the volume of the deposited binding reagent is between 0.002 and 2 nl (Column 14, lines 16-52). Additionally, they teach binding reagents include antibody-antigen and ligand-receptor binding (Column 7, lines 20-21) and are effective for carrying out immunochemical analysis of protein

mixtures, epitope mapping, assay of receptor-ligand binding (Column 15) and Zubay defines antibodies as being polypeptides of at least 50 amino acids in length (page 965, fig. 33.2). The preceding rejection is based on judicial precedent following In re Fitzgerald, 205 USPQ 594 because Beattie is silent with regard to binding reagent being a polypeptide. However, the polypeptide recited in Claim 10 is deemed to be inherent in the binding reagents in Beattie because their antigen-antibody and ligand-receptor binding reagents encompasses polypeptides which are effective for carrying out immunochemical analysis of protein mixtures, epitope mapping, assay of receptor-ligand binding all of which clearly suggests their microarray encompasses a microarray of polypeptides. Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the suggested polypeptides of Beattie to their microarray to thereby obtain a microarray of polypeptides for the obvious benefit of providing means for characterizing and/or identifying a multiplicity of polypeptide-binding reactions simultaneously as suggested by Beattie (Abstract, lines 1-3). The teaching of Beattie differs from the instantly claimed invention only in the process of making the microarray. However, the courts have stated patentability of a product does not depend upon the process of making the product.

> "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP 2113).

Therefore, because Beattie clearly suggests their microarray comprises polypeptides, the claimed microarray of polypeptides is obvious in view of the teaching of Beattie, even thought the microarray of Beattie is made by a different process.

Regarding Claim 11, Beattie teaches the microarray comprises 100 or more discrete regions/cm^2 (Column 5, line 66-Column 6, line 6).

Regarding Claim 12, Beattie teaches the microarray comprises 1000 or more discrete regions/cm^2 (Column 5, line 66-Column 6, line 6).

Regarding Claim 13, Beattie teaches the microarray wherein the binding reagents include antibody-antigen binding (Column 7, lines 20-21) and are effective for carrying out immunochemical analysis of protein mixtures and receptor-ligand binding (Column 15). The claim is given the broadest reasonable interpretation consistent with the claim language and specification wherein "immunological receptors" are not defined. Therefore, because the antibody-antigen binding and immunochemical analysis of Beattie encompasses immunological receptors, Beattie teaches the claimed immunological receptors.

Regarding Claim 14, Beattie teach the microarray wherein the binding reagents include antibody-antigen binding reagents which clearly suggests a microarray comprising antibodies (Column 7, lines 20-21) but the do not specifically teach their microarray comprises antibodies. However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the antibody-antigen binding reagents taught by Beattie and to provide a microarray comprising antibodies as suggested by Beattie to thereby provide means for characterizing and/or identifying a multiplicity of antibody-specific binding reactions simultaneously as suggested by Beattie (Abstract, lines 1-3) for the obvious benefit of characterizing and/or identifying clinically important antibody-binding reagents.

Regarding Claim 15, Beattie teach the microarray wherein the binding reagents include antibody-antigen binding reagents which clearly suggests a microarray comprising antigens (Column 7, lines 20-21) but the do not specifically teach their microarray comprises antigens. However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the antibody-antigen binding reagents taught by Beattie and to provide a microarray comprising antigens as suggested by Beattie to thereby provide means for characterizing and/or identifying a multiplicity of antigen-specific binding reactions

simultaneously as suggested by Beattie (Abstract, lines 1-3) for the obvious benefit of characterizing and/or identify clinically important antigen-binding reagents.

Regarding Claim 17, Beattie teach the microarray wherein the binding reagents include antibody-antigen binding reagents which clearly suggests a microarray comprising antibodies and it was well known in the art that antibodies comprises at least 50 amino acids (Column 7, lines 20-21) but the do not specifically teach their binding reagents comprise at least 50 amino acids. However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the antibody-antigen binding reagents taught by Beattie and to provide a microarray comprising antibodies as suggested by Beattie which are know to comprise at least 50 amino acids, to thereby provide means for characterizing and/or identifying a multiplicity of antibody-specific binding reactions simultaneously as suggested by Beattie (Abstract, lines 1-3) for the obvious benefit of characterizing and/or identifying clinically important antibody-binding reagents.

Regarding Claim 18, Beattie teach the microarray is useful for characterizing and/or identifying binding reactions (Abstract, lines 1-3) which clearly suggests the binding reagents retain their native structure because characterizing binding reactions requires conditions which simulate native conditions e.g. three-dimensional structure because absent native conditions, the characterization and/or identification would not determine binding reactions. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the polypeptide array of Beattie to provide polypeptides which retain their native three-dimensional structure to thereby provide means to characterize and/or identify native biological reactions for the obvious benefit of studying and/or diagnosing biological interactions as they occur in nature. The burden is on applicant to show that the claimed native three-dimensional structure is either different or non-obvious over that of Beattie.

Regarding Claim 31, Beattie teaches a microarray comprising binding reagents deposited at defined positions on a planar solid support wherein the microarray comprises 100

or more discrete regions/cm^2 (Fig. 1, Column 5, line 66-Column 6, line 6 and Claims 1 and 15) they teach binding reagents include antibody-antigen binding (Column 7, lines 20-21) and Zubay defines antibodies as being polypeptides of at least 50 amino acids in length (page 965, fig. 33.2). The preceding rejection is based on judicial precedent following In re Fitzgerald, 205 USPQ 594 because Beattie is silent with regard to binding reagent being a polypeptide. However, the polypeptide recited in Claim 31 is deemed to be inherent in the binding reagents in Beattie because their antigen-antibody and ligand-receptor binding reagents encompasses polypeptides which are effective for carrying out immunochemical analysis of protein mixtures, epitope mapping, assay of receptor-ligand binding all of which clearly suggests their microarray encompasses a microarray of polypeptides. Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the suggested polypeptides of Beattie to their microarray to thereby obtain a microarray of polypeptides for the obvious benefit of providing means for characterizing and/or identifying a multiplicity of polypeptide-binding reactions simultaneously as suggested by Beattie (Abstract, lines 1-3).

Regarding Claim 32, Beattie teaches the microarray comprises 1000 or more discrete regions/cm^2 (Column 5, line 66-Column 6, line 6).

Regarding Claim 33, Beattie teaches the microarray wherein the binding reagents include antibody-antigen binding (Column 7, lines 20-21) and are effective for carrying out immunochemical analysis of protein mixtures and receptor-ligand binding (Column 15). The claim is given the broadest reasonable interpretation consistent with the claim language and specification wherein "immunological receptors" are not defined. Therefore, because the antibody-antigen binding and immunochemical analysis of Beattie encompasses immunological receptors, Beattie teaches the claimed immunological receptors.

Regarding Claim 34, Beattie teach the microarray wherein the binding reagents include antibody-antigen binding reagents which clearly suggests a microarray comprising antibodies (Column 7, lines 20-21) but the do not specifically teach their microarray comprises antibodies.

However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the antibody-antigen binding reagents taught by Beattie and to provide a microarray comprising antibodies as suggested by Beattie to thereby provide means for characterizing and/or identifying a multiplicity of antibody-specific binding reactions simultaneously as suggested by Beattie (Abstract, lines 1-3) for the obvious benefit of characterizing and/or identifying clinically important antibody-binding reagents.

Regarding Claim 35, Beattie teach the microarray wherein the binding reagents include antibody-antigen binding reagents which clearly suggests a microarray comprising antigens (Column 7, lines 20-21) but the do not specifically teach their microarray comprises antigens. However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the antibody-antigen binding reagents taught by Beattie and to provide a microarray comprising antigens as suggested by Beattie to thereby provide means for characterizing and/or identifying a multiplicity of antigen-specific binding reactions simultaneously as suggested by Beattie (Abstract, lines 1-3) for the obvious benefit of characterizing and/or identify clinically important antigen-binding reagents.

Regarding Claim 37, Beattie teach the microarray is useful for characterizing and/or identifying binding reactions (Abstract, lines 1-3) which clearly suggests the binding reagents retain their native structure because characterizing binding reactions requires conditions which simulate native conditions e.g. three-dimensional structure because absent native conditions, the characterization and/or identification would not determine binding reactions. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the polypeptide array of Beattie to provide polypeptides which retain their native three-dimensional structure to thereby provide means to characterize and/or identify native biological reactions for the obvious benefit of studying and/or diagnosing biological interactions as they occur in nature. The burden is on applicant to show that the claimed native three-dimensional structure is either different or non-obvious over that of Beattie.

Response to Arguments

9. Applicant states that the instant invention is drawn to a microarray of selected polypeptides of at least 50 amino acids wherein the microarray is on a planar support. Applicant argues that in contrast to the instant invention, Beattie does not teach or suggest a planar substrate. The argument has been considered but is not found persuasive because, while the substrate of Beattie et al does have "wells", the substrate is planar (see Fig. 1A and Column 9, lines 45-59). Therefore, Beattie et al teach the planar substrate as claimed.

10. Claim 16 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beattie (U.S. Patent No. 5,843,767, filed 10 April 1996) as defined by Zubay, G. (Biochemistry,3rd ed. Wm C. Brown Pub., Dubuque Iowa, 1993, pages 964-966) as applied to Claim 10 above and further in view of Van Ness et al. (U.S. Patent No. 5,667,976, filed 14 February 1996).

Regarding Claims 16 and 36, Beattie teaches a microarray comprising binding reagents deposited at defined positions on a planar solid support (Claims 1 and 15) and they teach the volume of the deposited binding reagent is between 0.002 and 2 nl (Column 14, lines 16-52) but they do not teach a cationic film on the solid support capable of binding said polypeptide. However, cationic films on solid supports for binding polypeptides were well known in the art at the time the claimed invention was made as taught by Van Ness et al. who specifically teach the cationic film provides for convenient attachment of the polypeptide (Column 4, line 54-Column 5, line 7 and Column 6, lines 23-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the solid support of Beattie and to provide a cationic film on the solid support as taught by Van Ness et al. for the expected benefit of convenience of attachment as taught by Van Ness et al. (Column 6, lines 23-30).

Response to Arguments

11. Applicant states that the instant invention is drawn to a microarray of selected polypeptides of at least 50 amino acids wherein the microarray is on a planar support.

Applicant argues that in contrast to the instant invention, Beattie nor Van Ness teach or suggest a planar substrate. The argument has been considered but is not found persuasive because, while the substrate of Beattie et al does have "wells", the substrate is planar (see Fig. 1A and Column 9, lines 45-59). Therefore, Beattie et al teach the planar substrate as claimed.

Conclusion

12. No claim is allowed.

13. The examiner's Art Unit has changed from 1655 to 1634. Please address future correspondence to Art Unit 1634.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
September 27, 2002